**CLAIMS** 

What is claimed is:

1	1. A process for increasing the production of camptothecins by a
2	plant comprising the step of:
3	physically, biologically, or ecologically controlling the amount of
4	hormones produced by the plant.
1	2. The process as defined in Claim 1 wherein said physical,
2	biological, or ecological control of the amount of hormones produced by the plant
3	includes reducing the amount of auxin produced by the plant.
1	3. The process as defined in Claim 2 wherein the amount of said
2	auxin produced by the plant is reduced by removing those sites of the plant which
3	produce said auxin.
1	4. The process as defined in Claim 3 wherein the removal of said
2	sites of the plant which produce said auxin is accomplished by first pruning during a first
3	year of plant growth and then periodically harvesting young vegetative tissues from the
4	plant during a second and subsequent years of plant growth.
1	5. The process as defined in Claim 4 wherein said pruning during
2	said first year of plant growth further includes stem pruning four times during said first
3	year of plant growth.

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1	6. The process as defined in Claim 5 wherein said stem pruning
2	includes:
3	a first pruning after the last frost,
4	a second pruning about 12 to 20 weeks after said first pruning,
5	a third pruning about 8 to 12 weeks after said second pruning,
6	a fourth pruning after the last frost at the end of said first year of plant
7	growth.
1	7. The process as defined in Claim 6/further including root pruning
2	during said second year of plant growth, said root pruning further including:
3	a first pruning of about 1/3 of the roots;
4	a second pruning of about 1/3 of the roots about five weeks after said first
5	pruning of about 1/3 of the roots;
6	a third pruning of about 1/3 of the roots about five weeks after said second
7	pruning of about 1/3 of the roots.
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1	8. The process as defined in Claim 6 wherein:
2	said first pruning includes heading back young stems to less than about
3	50 cm. from the ground;
4	said second pruning includes heading back stems with a cut angle less than
5	about 30° from the main stem of the plant to about 50 cm. from the ground, heading back
6	those stems between about 30° and about 70° from the main stem to the third bud from
7	the stem tip;
8	said third pruning includes heading back stems with angles less than about
9	30° from the vertical to about 50/cm. from the ground, heading back the stems between
10	about 30° and about 70° from the main stem to the third bud from the stem tip;
11	said fourth pruning includes heading back stems with angles between
12	about 30° and about 70° from the main stem to the third bud from the stem tip.

9. The process as defined in Claim 7 further including the step of pinching off about 10% to about 30% of the leaf area at the tip of the leaf of about 20% to about 60% of all the leaves on each stem at the same time as each of said root prunings during said first or subsequent years of plant growth.

- 1 10. The process as defined in Claim 4 wherein said periodic harvesting 2 of young vegetative tissues is accomplished at about two to four week intervals during 3 said second and subsequent years of plant growth.
- 1 11. The process as defined in Claim 10 wherein said periodic 2 harvesting of young vegetative tissues is accomplished about 10 to 12 times per year of 3 plant growth.
- 1 12. The process as defined in Claim 4 wherein said young vegetative 2 tissues are between about 3 to about 20 days old.
- 1 13. The process as defined in Claim 12 wherein about 10% to about 20% of the leaf area at the tip of the leaf of about 20% to about 60% of all the leaves on each stem is pinched off at least about 6 to about 8 days before each harvest of young vegetative tissues.
- 1 14. A process for increasing the production of camptothecins by a 2 plant comprising the step of:
- increasing the formation of camptothecins-bearing trichomes on young vegetative tissues of the plant by physically, biologically, or ecologically controlling the amount of hormones produced by the plant.

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1	15. The process as defined in Claim 14 wherein said physical,
2	biological, or ecological control of the amount of hormones produced by the plant
3	includes reducing the amount of auxin produced by the plant.
1	16. The process as defined in Claim 15 wherein the amount of said
2	auxin produced by the plant is reduced by removing those sites of the plant which
3	produce said auxin.
1	17. The process as defined in Claim 16 wherein the removal of said
2	sites of the plant which produce said auxin is accomplished by first pruning during a first
3	year of plant growth and then periodically harvesting young vegetative tissues from the
4	plant during a second and subsequent years of plant growth.
1	18. The process as defined in Claim 17 wherein said pruning during
2	said first year of plant growth further includes stem pruning four times during said first
3	year of plant growth.
1	19. The process as defined in Claim 18 wherein said stem pruning
2	includes:
3	a first pruning after the last frost,
4	a second pruning about 12 to 20 weeks after said first pruning,
5	a third pruning about 8 to 12 weeks after said second pruning,
5 6	a third pruning about 8 to 12 weeks after said second pruning, a fourth pruning after the last frost at the end of said first year of plant

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1	20. The process as defined in Claim 19 further including root pruning
2	during said second year of plant growth, said root pruning further including:
3	a first pruning of about 1/3 of the roots;
4	a second pruning of about 1/3 of the roots about five weeks after said first
5	pruning of about 1/3 of the roots;
6	a third pruning of about 1/3 of the roots about five weeks after said second
7	pruning of about 1/3 of the roots.
1	21. The process as defined in claim 19 wherein:
2	said first pruning includes heading back young stems to less than about
3	50 cm. from the ground;
4	said second pruning includes heading back stems with a cut angle less than
5	30° from the main stem of the plant to about 50 cm. from the ground, heading back those
6	stems between about 30° and about 70° from the main stem to the third bud from the
7	stem tip;
8	said third pruning includes heading back stems with angles less than 30°
9	from the vertical to about 50 cm. from the ground, heading back the stems between about
10	30° and 70° from the main stem to the third bud from the stem tip;
11	said fourth pruring includes heading back stems with angles between
12	about 30° and about 70° from the main stem to the third bud from the stem tip.
1	22. The process as defined in Claim 20 further including the step of
2	pinching off about 10% to about 30% of the leaf area at the tip of the leaf of about 20% to
3	about 60% of all the leaves on each stem at the same time as each of said root prunings
4	during said first or subsequent years of plant growth.
1	23. The process as defined in Claim 17 wherein said periodic
2	harvesting of young vegetative tissues is accomplished at about two to four week
3	intervals during said second and subsequent years of plant growth.

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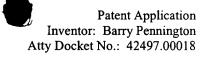
1	24. The process as defined in Claim 23 wherein said periodic
2	harvesting of young vegetative tissues is accomplished about 10 to 12 times per year of
3	plant growth.
1	25. The process as defined in Claim 17 wherein said young vegetative
2	tissues are between about 3 to about 20 days old.
1	26. The process as defined in Claim 25 wherein about 10% to about
2	30% of the leaf area at the tip of the leaf of about 20% to about 60% of all the leaves on
3	each stem is pinched off at least about 6 to about 8 days before each harvest of said
4	young vegetative tissues.
1	27. A process for increasing the production of camptothecins by a
2	plant comprising the steps of:
3	increasing the amount of young vegetative tissues produced by the plant;
4	increasing the formation of camptothecins-bearing trichomes on said
5	increased amount of said young vegetative tissues by physically, biologically, or
6	ecologically controlling the amount of hormones produced by the plant.
1	28. The process as defined in Claim 27 wherein said physical,
2	biological, or ecological control of the amount of hormones produced by the plant
3	includes reducing the amount of auxin produced by the plant.
1	29. The process as defined in Claim 28 wherein the amount of said
2	auxin produced by the plant is reduced by removing those sites of the plant which

produce said auxin.

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1	30. The process as defined in Claim 29 wherein both the removal of
2	those sites of the plant which produce auxin and increasing the amount of young
3	vegetative tissues produced by the plant is accomplished by first pruning during a first
4	year of plant growth and then periodically harvesting young vegetative tissues from the
5	plant during a second and subsequent years of plant growth.
1	31. The process as defined in Claim 30 wherein said pruning during
2	said first year of plant growth further includes stem pruning four times during said first
3	year of plant growth.
1	32. The process as defined in Claim 31 wherein said stem pruning
2	includes:
3	a first pruning after the last frost,
4	a second pruning about 12 to 20 weeks after said first pruning,
5	a third pruning about 8 to 12 weeks after said second pruning,
6	a fourth pruning after the last frost at the end of said first year of plant
7	growth.
1	33. The process as defined in Claim 32 further including root pruning
2	during said second year of plant growth, said root pruning further including:
3	a first pruning of about 1/3 of the roots;
4	a second pruning of about 1/3 of the roots about five weeks after said first
5	pruning of about 1/3 of the roots;
6	a third pruning of about 1/3 of the roots about five weeks after said second
7	pruning of about 1/3 of the roots.





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34. The process as defined in claim 32 wherein:

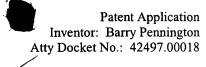
said first pruning includes heading back young stems to less than about 50 cm. from the ground;

said second pruning includes heading back stems with a cut angle less than about 30° from the main stem of the plant to about 50 cm. from the ground, heading back those stems between about 30° and about 70° from the main stem to the third bud from the stem tip;

said third pruning includes heading back stems with angles less than about 30° from the vertical to about 50 cm. from the ground, heading back the stems between about 30° and about 70° from the main stem to the third bud from the stem tip:

said fourth pruning includes heading back stems with angles between about 30° and about 70° from the main stem to the third bud from the stem tip.

- The process as defined in Claim 33 further including the step of pinching off about 10% to about 30% of the leaf area at the tip of the leaf of about 20% to about 60% of all the leaves on each stem at the same time as each of said root prunings during said first or subsequent years of plant growth.
- 36. The process as defined in Claim 30 wherein said periodic harvesting of said young vegetative tissues is accomplished at about two to four week intervals during said second and subsequent years of plant growth.
  - 37. The process as defined in Claim 36 wherein said periodic harvesting of said young vegetative tissues is accomplished about 10 to 12 times per year of plant growth.
- 1 38. The process as defined in Claim 30 wherein said young vegetative 2 tissues are between about 3 to about 20 days old.



1	39. The process as defined in Claim 38 wherein about 10% to about
2	30% of the leaf area at the tip of the leaf of about 20% to about 60% of all the leaves on
3	each stem is pinched off at least about 6 to about 8 days before each harvest of said
4	young vegetative tissues.
1	40. A process for increasing the amount of camptothecins-bearing
2	trichomes harvested from a plant comprising the steps of:
3	increasing the amount of young vegetative tissues produced by the plant;
4	increasing the formation of camptothecins-bearing trichomes on said
5	increased amount of young vegetative tissues;
6	reducing the amount of camptothecins-bearing trichomes falling away
7	from said young vegetative tissues after the harvesting of the young vegetative tissues.
1	41. The process as defined in claim 40 wherein said amount of
2	camptothecins-bearing trichomes falling away from said young vegetative tissues is
3	reduced by processing said young vegetative tissues within about two days after
4	harvesting.
<	Fuls 42. The process as defined in claim 40 wherein the amount of said
1	42. The process as defined in claim 40 wherein the amount of said
2	camptothecins-bearing trichomes falling away from said young vegetative tissues is
3	reduced by freezing said young yegetative tissues shortly after harvesting.

1	43. A process for increasing the amount of camptothecins harvested
2	from a plant which includes camptothecins-bearing trichomes comprising the steps of:
3	increasing the amount of young vegetative tissues produced by the plant;
4	increasing the formation of camptothecins-bearing trichomes on said
5	increased amount of young vegetative tissues;
6	reducing the number of camptothecins-bearing trichomes falling away
7	from the young vegetative tissues after the harvesting of the young vegetative tissues;
8	breaking said trichome walls to release the camptothecins with the
9	camptothecins-bearing trichomes.
1	44. The process as defined in claim 43 wherein said trichome walls are
2	broken using ultrasound.
1	45. The process as defined in claim 43 wherein said trichome walls are
2	broken using a homogenizer.
1	46. The process as defined in claim 43 wherein said trichome walls are
2	broken by a physical impact on said trichome walls.
1	47. The process as defined in claim 43 wherein said camptothecins are
2	collected in a solvent.